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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,681	10/31/2003	Kimon Berlin	200314176-1	3559

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EXAMINER

MOORE, PATRICK M

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 10/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/698,681

Applicant(s)

BERLIN, KIMON

Examiner

Patrick M. Moore

Art Unit

2188

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-6 have been examined.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4 & 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Bogin et al (US Patent # 6,192,455), herein **Bogin**.

- a. As per Claims 1 & 4, **Bogin** discloses a method of configuring resources in an IA-32 computer and a machine-readable storage or transmission medium containing code that, when executed on a computer, causes the computer to perform said method [**Column 2, Lines 58-67**], the method comprising: establishing a remap window at the top of physical memory [**Figure 2c, #127 & Column 4, Lines 29-45**], the remap window corresponding to a PCI memory address range below 4 GB [**Column 3, Lines 3-30**]; and reporting to an operating system that a portion of the remap window is reserved, the reserved portion corresponding to an AGP aperture within the PCI memory address range [**Column 4, Lines 9-17 & Column 5, Lines 43-62**].

- b. As per Claims 2 & 5, **Bogin** further discloses the method of claim 1 and the storage or transmission medium of Claim 4, respectively, further comprising:

reporting to the operating system that the remainder of the remap window is usable memory [Column 5, Lines 43-62]. Examiner understands that **Bogin's** non-SMRAM memory areas are reported as usable while SMRAM memory areas are unusable and reserved, as taught in Column 1, Lines 15-28 & 53-58.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3 & 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bogin et al. (US Patent # 6,192,455) in view of Campbell (US Patent # 6,886,090), herein **Campbell**.

- a. As per Claims 3 & 6, **Bogin** discloses a method of configuring resources in an IA-32 computer and a machine-readable storage or transmission medium containing code that, when executed on a computer, causes the computer to perform said method, the method comprising: setting a REMAPBASE register to the top of physical memory [Figure 2c, "Top of Main Memory" & Column 4, Lines 29-34], and a REMAPLIMIT register to the value in the REMAPBASE register plus the size of a PCI memory address range [Figure 2c, "X", #127, Figure 4, # 401, 402 & Column 6, Lines 26-36]; determining a translated AGP aperture address corresponding to the lower end of an AGP aperture minus the

address of the top of lower memory plus the value in the REMAPBASE register
[Column 5, Lines 43-62 & Column 6, Lines 26-36].

- b. **Bogin** implies, but does not expressly disclose three distinct memory ranges. However, **Campbell** discloses where in response to queries from an operating system to a BIOS, reporting at least three memory ranges as follows: a first usable range beginning at 4 GB and ending at the translated AGP aperture address **[lower “PCI” region of the “Physical Address Space” as per Figure 2 & Column 1, Lines 41-50]**; a reserved range beginning at the top of the first usable range and having a size equal to AGP aperture **[“AGP” region of the “Physical Address Space” as per Figure 2 & Column 1, Lines 41-50]**; and a second usable range beginning at the top of the reserved range and ending at the value in the REMAPLIMIT register **[upper “PCI” region of the “Physical Address Space” as per Figure 2 & Column 1, Lines 41-50].**
- c. **Bogin** and **Campbell** are analogous art because they are from the same field of endeavor: memory management through applied translation and virtualization. At the time of invention, it would have been obvious to one of ordinary skill in the art to apply the methods of access restriction of AGP addresses, as taught by **Bogin**, using the three distinct ranges of memory (PCI, AGP, PCI, respectively), as taught by **Campbell**. The suggestion/motivation for doing so would have been to combine all translation into a single TLB to reduce the complexity, redundancy and extra processing required by the memory system, as disclosed by **Campbell** in **Column 5, Lines 10-19**. Examiner understands **Bogin’s**

SMRAM range register [**Figure 4, #401**] and comparator [**Figure 4, #402**] imply a first usable range to be “through a ... ‘less than’ compare with [lower] SMRAM boundary” and second usable range to be “through a ‘greater than’ ... compare with [upper] SMRAM boundary”, as disclosed by **Bogin** in **Column 6, Lines 26-36**. Therefore, it would have been obvious to combine **Bogin** with **Campbell** to obtain the invention as specified in **Claims 3 & 6**.

Response to Arguments

4. Applicant's arguments, specifically ¶¶3 and ¶¶5, filed **05 July 2006**, with respect to the rejection(s) of claim(s) **3 & 6** under **35 USC 102(b)** have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of **Bogin**, further in view of **Campbell** (US Patent # 6,886,090).

5. Applicant's arguments filed **05 July 2006**, with respect to the rejection of claims **1, 2, 4 & 5** have been fully considered but they are not persuasive.

- a. As per the argument that **Bogin** does not disclose disabling any portion of the remap window, Examiner points out the “AGP aperture is ... provided with a reserved memory portion” as per **Column 4, Lines 9-16** of **Bogin**. Examiner understands that **Bogin** discloses that reserving a portion of translated memory is functionally equivalent to disabling, as claimed by Applicant.
- b. As per the argument that **Bogin** does not teach reclaiming physical memory while leaving part of it unreclaimed, Examiner understands that this is the cause for the new grounds of rejection only for **Claims 3 & 6** because **Claims 1, 2, 4 &**

5 do not include the limitation that part of the remap window be left unreclaimed.

Furthermore, Examiner asserts that **Bogin** does teach all the limitations of independent Claims 1 & 4 and maintains the rejections under **35 USC 102(b)**.


Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick M. Moore whose telephone number is (571) 272-1239. The examiner can normally be reached on M-F 8:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung S. Sough can be reached on (571) 272-6799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PMM


HYUNG SONGH
SUPERVISORY PATENT EXAMINER